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NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC-MS-PMC-2016-17 17.11.2016

Specific Gravity And Water Absorption Test
IS: 2386 Part III

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Sri.Muraliswamy,** Contractor, Bangalore.
Name of the Work	Improvements and Asphalting of Ward Roads & Connecting Roads in Ward No. 14 & 15 of Shettyhalli Sub Division Dasarahalli zone. Package No. DZ 2016-16-(02) (19 works), BBMP, Bangalore.
Reference	EE/DD/PACKAGE/WO/75/2016-17 Dated:03.10.2016
Type of Mix	Bituminous Concrete
Date of Testing	17.11.2016

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2021	2023	2025	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g .	1266	1268	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	750	750	750	
6	Weight of oven dried aggregate	W_4 g	2006	2007	2008	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.675	2.676	2.677	2.676
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.711	2.716	2.721	2.716
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.55%	0.60%	0.55%

Comments:
→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No.: CECTC-MS-PMC-2016-17 18.11.2016

Aggregate Gradation Test
IS : 2386 Part I

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Sri.Muraliswamy,** Contractor, Bangalore.
Name of theWork	Improvements and Asphalting of Ward Roads & Connecting Roads in Ward No. 14 & 15 of Shettyhalli Sub Division Dasarahalli zone. Package No. DZ 2016-16-(02) (19 works), BBMP, Bangalore.
Reference	EE/DD/PACKAGE/WO/75/2016-17 Dated:03.10.2016
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	18.11.2016

Total Weight of Sample: **5270** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	469	8.90	8.90	91.10	79 - 100	
9.5	516	9.79	18.69	81.31	70 - 88	
4.75	650	12.33	31.02	68.98	53 - 71	
2.36	618	11.73	42.75	57.25	42 - 58	
1.18	539	10.23	52.98	47.02	34 - 48	
0.600	626	11.88	64.86	35.14	26 - 38	
0.300	740	14.04	78.90	21.10	18 - 28	
0.150	410	7.78	86.68	13.32	12 - 20	
0.075	401	7.61	94.29	5.71	4 - 10	

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	635	12.10	12.10	87.90	79 - 100	
9.5	510	9.71	21.81	78.19	70 - 88	
4.75	620	11.81	33.62	66.38	53 - 71	
2.36	515	9.81	43.43	56.57	42 - 58	
1.18	635	12.10	55.52	44.48	34 - 48	
0.600	598	11.39	66.91	33.09	26 - 38	
0.300	480	9.14	76.06	23.94	18 - 28	
0.150	615	11.71	87.77	12.23	12 - 20	
0.075	416	7.92	95.70	4.30	4 - 10	

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Job No.: CECTC-MS-PMC-2016-17 Date: 18.11.2016

TEST REPORT ON STABILITY OF MIX

Client	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	:	**Sri.Muraliswamy,** Contractor, Bangalore.
Name of the Work	:	Improvements and Asphalting of Ward Roads & Connecting Roads in Ward No. 14 & 15 of Shettyhalli Sub Division Dasarahalli zone. Package No. DZ 2016-16-(02) (19 works), BBMP, Bangalore.
Reference		EE/DD/PACKAGE/WO/75/2016-17 Dated:03.10.2016
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	18.11.2016

The results of the tests conducted on the bituminous concrete mix sample are as follows

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.98	10.52	9 Kn (min)
2	Marshal flow, mm	3.65	2.18	2 – 4
3	Percent air voids in Mineral Aggregate	13.96	14.81	13 – 15
4	Voids in Compacted Mix	2.63	3.54	3 – 6
5	Percent Voids filled with Bitumen	70.85	71.63	65 - 75
6	Density, g/cc	2.26	2.27	--

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Job No: CECTC-MS-PMC-2016-17 Date 18.11.2016

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE AASHTO T 164 & AASHTO T 30

CLIENT	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	**Sri.Muraliswamy,** Contractor, Bangalore.
NAME OF THE WORK	Improvements and Asphalting of Ward Roads & Connecting Roads in Ward No. 14 & 15 of Shettyhalli Sub Division Dasarahalli zone. Package No. DZ 2016-16-(02) (19 works), BBMP, Bangalore.
REFERENCE	EE/DD/PACKAGE/WO/75/2016-17 Dated:03.10.2016
DATE OF TESTING	18.11.2016

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.5	470
3. Weight of Asphalt and Mineral matter Extracted, g	30.5	30
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30.5	30
7. Bitumen content in %	6.10	6.00
8. Average	6.05	

GRADATION AFTER EXTRACTION

TABLE - 1

Sieve size in mm	Percent Passing, %		Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Sample 1	Sample 2	
19	100.00	100.00	100
13.2	93.45	92.65	90-100
9.5	81.70	80.36	70-88
4.75	63.62	62.51	53-71
2.36	46.21	45.23	42-58
1.18	43.69	44.52	34-48
0.6	34.25	33.41	26-38
0.3	24.14	25.63	18-28
0.15	17.45	17.85	12-20
0.075	5.82	6.16	4-10

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Job No.: CECTC-MS-PMC-2016-17 Date: 18.11.2016

TEST REPORT ON STABILITY OF MIX

Client	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	:	**Sri.Muraliswamy,** Contractor, Bangalore.
Name of the Work	:	Improvements and Asphalting of Ward Roads & Connecting Roads in Ward No. 14 & 15 of Shettyhalli Sub Division Dasarahalli zone. Package No. DZ 2016-16-(02) (19 works), BBMP, Bangalore.
Reference		EE/DD/PACKAGE/WO/75/2016-17 Dated:03.10.2016
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	18.11.2016

The results of the tests conducted on the bituminous concrete mix sample are as follows

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.98	10.52	9 Kn (min)
2	Marshal flow, mm	3.65	2.18	2 – 4
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4	Voids in Compacted Mix	2.63	3.54	3 – 6
5	Percent Voids filled with Bitumen	70.85	71.63	65 - 75
6	Density, g/cc	2.26	2.27	--

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Job No.: CECTC-MS-PMC-2016-17 18.11.2016

DETERMINATION OF RATE OF SPREAD TACK COAT

CLIENT	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	:	**Sri.Muraliswamy,** Contractor, Bangalore.
NAME OF THE WORK	:	Improvements and Asphalting of Ward Roads & Connecting Roads in Ward No. 14 & 15 of Shettyhalli Sub Division Dasarahalli zone. Package No. DZ 2016-16-(02) (19 works), BBMP, Bangalore.
REFERENCE		EE/DD/PACKAGE/WO/75/2016-17 Dated:03.10.2016
DATE OF TESTING	:	18.11.2016

On DBM

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	mt	0.45 X 0.45	0.45 X 0.45
Area of Plate (a)	Sq.m	0.2025	0.2025
Intial Wt of empty Plate (b)	Kg	1.625	1.627
Final weight of plate after application of prime /Tack Coat (c)	Kg	1.678	1.682
Weight of Prime/Tack Coat (d=c-b)	Kg	0.0530	0.0550
Rate of spread of prime /tack coat	kg/Sq.m	0.262	0.272
Average	kg/Sq.m	0.267	
Specified Limit	kg/Sq.m	0.25 Kg/sq.m	

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Job No.: CECTC-MS-PMC-2016-17 18.11.2016

DETERMINATION OF RATE OF SPREAD TACK COAT

CLIENT	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	:	**Sri.Muraliswamy,** Contractor, Bangalore.
NAME OF THE WORK	:	Improvements and Asphalting of Ward Roads & Connecting Roads in Ward No. 14 & 15 of Shettyhalli Sub Division Dasarahalli zone. Package No. DZ 2016-16-(02) (19 works), BBMP, Bangalore.
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On DBM

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		1	2
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